REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-9 and 14-63 are pending in the present application, with Claims 1-9 and 23-63 having been withdrawn from consideration. Claim 14 is amended; and Claim 15 is canceled without prejudice or disclaimer by the present amendment. Claim 14 is amended to incorporate the features of now-canceled Claim 15. No new matter is presented.

In the Office Action, Claims 14-16, 19 and 22 are rejected under 35 U.S.C. § 103(a) as unpatentable over Masao et al. (JP 11-284261, herein Masao) in view of Islam et al. (U.S. 2003/0012495, herein Islam); Claims 17 and 20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Masao in view of Islam and Liu et al. (U.S. 5,715,346, herein Liu); and Claims 18 and 21 are rejected under 35 U.S.C. § 103(a) as unpatentable over Masao in view of Islam and Poustie et al. (U.S. 5,796,891, herein Poustie).

In response to the above noted rejections, Applicants respectfully submit that amended independent Claim 14 recites novel features clearly not taught or rendered obvious by the applied references.

Independent Claim 14, as amended to incorporate the features of Claim 15, recites a waveform reshaping device having a soliton converter comprising an anomalous dispersion fiber (ADF) in which a fiber length thereof is up to twice of that of a soliton frequency, wherein a pulse compressor is included at an input side, and ***said pulse compressor utilizes an adiabatic compression***.

Turning to the applied references, Masao describes a waveform reshaping device having a soliton convertor comprising an anomalous dispersion fiber (ADF) having a fiber length of up to twice of that of a soliton frequency. As acknowledged at pp. 2-3 of the Office

Action, however, Masao fails to disclose a pulse compressor provided at an input side of the soliton convertor, which uses an adiabatic compression.

In an attempt to remedy the above noted deficiencies, the Office Action relies on Islam, noting that that this reference discloses a pulse compressor coupled to a soliton regeneration device and asserts that it would have been obvious to one of ordinary skill in the art to include the pulse compressor of Islam in the device of Masao. Applicants respectfully traverse this assertion.

As shown in Fig. 1, Islam describes a system for generating a broadband spectral continuum ("supercontinuum") from a higher-order soliton pulse. Fig. 6 of Islam describes that his system includes a pulse compressor 28 of anomalous dispersion fiber (ADF) for compressing the higher-order soliton pulse through soliton-effect compression (SEC) to obtain a compressed soliton pulse, and a spectral shaper 30 coupled to the pulse compressor for breaking the compressed soliton pulse through higher order dispersion effects and self-phase modulation (STM) to obtain the SC having a broadband spectral continuum. Applicants respectfully submit that the SC system as disclosed in Islam is totally different from that of Masao because Masao is designed to regenerate a soliton or soliton-like pulse ("waveform reshaping") using the soliton convertor. The soliton pulse is completely different form a supercontinuum pulse or SC as taught by Islam.

As in Islam, a pulse compressor is a requirement for SC systems because SC systems generally use a compressed pulse (ultra short pulse) which enters and propagates through a non-linear medium with the result that the compressed pulse is transformed into a required SC. In addition, a pulse compressor of Islam is a specific pulse compressor designed to compress a higher order soliton pulse through soliton-effect compression (SEC). As described at paragraphs [0054], [0062] and [0082], Islam prefers the SEC pulse compressor to an adiabatic soliton compression (ASC) pulse compressor.

As evident from above, in SC systems, a pulse compressor in combination with the non-linear medium makes essential contribution to generation of a desired SC. Specifically, paragraph [0060] of Islam specifically states that "Pulse compression is a key mechanism ... because the ideal continuum is the transform of a pulse of negligible temporal extent."

In contrast, in the art of soliton converters, as in Masao, no pulse compressors have been proposed as a pre-processing device coupled to solution converters.

In accordance with the invention, provided at an input side of a soliton converter is a pulse compressor which compresses an optical pulse through ***adiabatic compression*** rather than SEC as preferred in SC system of Islam. Remarkably, the pulse compressor of adiabatic compression type serves to greatly improve optical signal to noise ratio (OSNR) in the soliton output from the soliton convertor.

It is thus understood that the optical pulse compressor in the claimed device has an essentially different function from that of the optical pulse compressor as taught in Islam.

At least for these reasons, Applicants respectfully traverse the position set forth in the Office Action that it would have been obvious to one of ordinary skill in the art to include the pulse compressor taught by Islam in the device of Masao. Moreover, it is respectfully submitted even such combination of Islam and Masao would still not reach the subject matter of Claim 14 in view of the fact that the pulse compressor of Masao is based on SEC rather than ***adiabatic compression***.

Moreover, neither Liu nor Poustie remedy the above noted deficiencies of Islam and Masao.

Accordingly, for at least the reasons discussed above, Applicants respectfully request that the rejection of independent Claim 13 (and Claims 16-22, which depend therefrom) under 35 U.S.C. § 103 be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 15 and 16-22 patentably distinguishing over the applied references. The present application is therefore believed to be in condition for allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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